


# Shafts

Both Ends Threaded with O.D. same as Shaft O.D.

For One End Threaded Shafts with different diameters, see P.181.

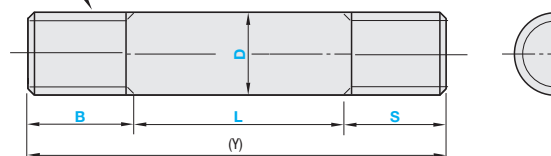


Type			Material	Hardness	Surface Treatment
D Tol. g6	D Tol. h5	D Tol. f8			
SFAL	SFUL	-	SUJ2 Equivalent	Effective Hardened Depth of Induction	-
SSFAL	SSFUL	-	SUS440C or 13Cr stainless		
PSFAL	PSFUL	-	SUJ2 Equivalent	Hardening P.142 SUJ2 Equivalent SUS440C or 13Cr stainless	Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 5μ or More
PSSFAL	PSSFUL	-	SUS440C or 13Cr stainless		
RSFAL	-	-	SUJ2 Equivalent	S45C Equivalent	Low Temp. Black Chrome Plating Hardness: HV750 ~, Plating Thickness: 10μ or More
-	-	PSFGL	S45C Equivalent		
-	-	PSSFGL	SUS304	-	-

For plated products, the surface roughness of D part is  $\sqrt{0.4}$ ; and for unplated products, it is  $\sqrt{0.4}$ .

2-M (Coarse) = D

$6.3 / (1.6 / 0.4 / 0.4)$



RoHS 10

- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm).
- P.142
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.141
- Features of Low Temp. Black Chrome Plating P.156

Part Number	Type	D	1mm Increments		M	(Y) Max.	Coarse Thread Dimensions	
			L	B, S			M	Pitch
(D Tol. g6) SFAL	(D Tol. h5) SFUL	3	25~ 194	3~ 15	3	200	3	0.5
SSFAL	SSFUL	4	25~ 292	4~ 20	4	300	4	0.7
PSFAL	PSFUL	5	25~ 392	4~ 25	5	400	5	0.8
PSSFAL	PSSFUL	6	25~ 790	5~ 30	6	600	6	1.0
RSFAL (L≤500, Ymax≤800)	-	8	25~ 986	7~ 40	8	800	8	1.25
-	-	10	25~ 986	8~ 50	10	800	10	1.5
-	-	12	25~1182	9~ 60	12	1000	12	1.75
(D Tol. f8) PSFGL (D≥6)	(D≥6) PSSFGL	16	25~1180	10~ 80	16	1200	16	2.0
-	-	20	25~1174	13~100	20	1200	20	2.5
-	-	30	25~1464	18~150	30	1500	30	3.5

For One End Threaded with O.D. same as Shaft O.D., L dimensions have priority, thus the effective thread length of B(S) dimension will be B(S)-(Pitch)2.  
L does not include incomplete threads.

Ordering Example: Part Number - L - B - S  
SFAL20 - 300 - B20 - S15

Alterations: Part Number - L - B - S - (SC...etc.)  
SFAL30 - 300 - B30 - S40 - SC10

Alterations	Code	Spec.
	SC	Wrench Flats at One Location (Ordering Code) SC5 (Application Notes) Applicable to D=6 or more SC=1mm Increment D W E1 SC+δ1<L 6 5 8 SC>0 8 7 8 Not available in combination with WSC.
	WSC	Second Set of Wrench Flats (Ordering Code) WSC15 WSC(X)=1mm Increment 12 10 10 16 14 10 WSC(X) = 1mm Increment 20 17 15 30 27 15 WSC+X+δ1x2<L WSC(X)>0 Orientation between two set screw flats is not coplanar. Not available in combination with SC.
	FC	Set Screw Flat at One Location (Ordering Code) FC10-E8 FC, E=1mm Increment 3~ 5 0.5 6~16 1 D≤30:FC≤5xD D≥35:FC≥3xD E=0 or E≥2 Not available in combination with WFC.
	WFC	Set Screw Flats at Two Locations (Ordering Code) WFC10-A8-E20 WFC, A, E=1mm Increment 3~ 5 0.5 6~16 1 D≤30:WFC≤5xD D≥35:WFC≥3xD A(E)=0 or A(E)≥2 Orientation between set screw flats is not coplanar. Not available in combination with FC.

Alterations	Code	Spec.
	RC	90-deg. Set Screw Flat at One Location (Ordering Code) RC10 (Application Notes) Only applicable to D=10~30. Not available in combination with WRC.
	WRC	90-deg. Set Screw Flats at Two Locations (Ordering Code) WRC10-Y10 (Application Notes) Only applicable to D=10~30. Not available in combination with RC. Orientation between two set screw flats is not coplanar.
	PMC, PMS (Fine) QMC, QMS (Fine)	Change to Fine Thread (Ordering Code) PMC10 PMS10 QMC10 QMS10 D PMC,QMC Pitch PMS,QMS Pitch 3 3 0.35 4 4 0.5 5 5 0.75 6 6 1.0 8 8 1.25 10 10 1.5 12 12 1.5 16 - - 20 20 1.0 30 30 1.5

Please see Alteration Overview for details. P.143  
When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. P.144  
Alterations may lower hardness. See P.142.

For products uncovered by the e-Catalog Standards, see P.131.

Part Number	Type	D	Unit Price																									
			Min. L	L51	L101	L151	L201	L251	L301	L351	L401	L451	L501	L551	L601	L651	L701	L751	L801	L851	L901	L951	L1001	L1101	L1201	L1301	L1401	
SFAL	SFUL	3																										
		4																										
		5																										
		6																										
		8																										
		10																										
SSFAL	SSFUL	3																										
		4																										
		5																										
		6																										
		8																										
		10																										
PSFAL	PSFUL	3																										
		4																										
		5																										
		6																										
		8																										
		10																										
PSSFAL	PSSFUL	3																										
		4																										
		5																										
		6																										
		8																										
		10																										

For D tolerance h5, add the relevant surcharge to the prices above.

Part Number	Type	D	Unit Price						
			Min. L	L51	L101	L151	L201	L301	L401
RSFAL	-	3							
		4							
		5							
		6							
		8							
		10							
PSSFGL	-	6							
		8							
		10							
		12							
		16							
		20							
PSSFGL	-	6							
		8							
		10							
		12							
		16							
		20							

Part Number	Type	D	Unit Price							
			Min. L	L101	L201	L401	L601	L801	L1001	L1201
PSFGL	-	6								
		8								
		10								
		12								
		16								
		20								
PSSFGL	-	6								
		8								
		10								
		12								
		16								
		20								